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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,500	06/26/2003	Shinichiro Hataoka	5077-000172	5212
27572	7590	04/19/2005		EXAMINER
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			TRAN, THUY V	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SVM

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/606,500	HATAOKA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thuy V. Tran	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on amendment submitted on 01/26/2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 17, 18 and 20 is/are allowed.
- 6) Claim(s) 1-8, 10-16, 19, 21 and 22 is/are rejected.
- 7) Claim(s) 9 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 January 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/08/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

This is a response to the Applicants' amendment submitted on January 26<sup>th</sup>, 2005. In virtue of this amendment, claims 1-22 are currently presented in the instant application.

Upon reconsideration, the indicated allowability of claims 13-14 and 21 is hereby withdrawn in view of the teachings of prior art of record to Kaneko et al. (U.S. Patent No. 6,232,719) and a newly found prior art to Arimoto et al. (U.S. Patent No. 6,597,118). The rejections are being made as follows:

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on December 8<sup>th</sup> 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings Replacement accepted***

2. The drawings replacement sheets including Figs. 1 and 17 were received on January 26<sup>th</sup>, 2005. These drawings are accepted.

### ***Abstract Objection***

3. The abstract of the disclosure is objected to because it contains the word "means" therein. Correction is required. See MPEP § 608.01(b).
4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

*The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.*

*The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.*

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8, 10-16, 19, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. (U.S. Patent No. 6,232,719) in view of Arimoto et al. (U.S. Patent No. 6,579,118).

With respect to claim 1, Kaneko et al. discloses, in Fig. 1, a high-pressure mercury lamp comprising a luminous bulb [1] in which mercury [5] is enclosed inside the bulb, and a pair of sealing portions [2] that retain air tightness of the luminous bulb, wherein each of the sealing portions has a first glass portion [2] (see col. 6, line 49) extending from the luminous bulb and a second glass portion [4] (see col. 6, line 46) provided in a portion inside the first glass portion, and the sealing portions have a portion (see Fig. 1) to which a compressive stress is applied. Kaneko et al. does not teach a heating wire provided at least in a portion of the luminous bulb and at least in a portion of each of the pair of sealing portions.

Arimoto et al. discloses, in Fig. 1, a high-pressure mercury lamp comprising a heating wire [11, 12] (which is means for heating the luminous bulb; see Arimoto et al.; col. 5, lines 33-36) in a portion of a luminous bulb [3] and in a portion of each of a pair of sealing portions [4, 5] (which is connected to a switch [SC] for turning ON and OFF an electrical connection with external lead wires [13, 15]; see col. 5, lines 47-56).

It would have been obvious to one of ordinary skills in the art at the time of the invention to implement the mercury lamp of Kaneko et al. by additionally configuring a heating wire in a portion of the luminous bulb and in a portion of each of the pair of sealing portions for heating up the outer surface of the lamp including the emission portion of the discharge container to a high temperature so as to be able to make the mercury therein fully steam and thus to prevent the generation of the glow discharge at the time of the lamp start-up since such an arrangement of the heating wire for the stated purpose has been well known in the art as evidenced by the teachings of Arimoto et al. (see col. 1, lines 56-60; col. 2, lines 15-33).

With respect to claims 2-3, 11-12, and 19, Kaneko et al. discloses all of the claimed subject matter, as expressly recited in claim 1, except for (i) an amount of the enclosed mercury being 230 mg/cm<sup>3</sup> or more based on a volume of the luminous bulb, or (ii) an amount of the enclosed mercury being 300 mg/cm<sup>3</sup> or more based on a volume of the luminous bulb, (iii) halogen being enclosed in the luminous bulb, and (iv) a bulb wall load of the high pressure mercury lamp being 80 W/cm<sup>2</sup> or more.

Arimoto et al. discloses, in Fig. 1, a high pressure mercury lamp wherein (i) an amount of the enclosed mercury [6] is 230 mg/cm<sup>3</sup> or more is based on a volume of the luminous bulb (see col. 5, lines 15-32) or (ii) an amount of the enclosed mercury is 300 mg/cm<sup>3</sup> or more based on a volume of the luminous bulb (see col. 5, lines 15-32), (iii) halogen is enclosed in the luminous bulb (see col. 5, lines 15-32), and (iv) a bulb wall load of the high pressure mercury lamp is 80 W/cm<sup>2</sup> or more (see col. 5, line 31).

It would have been obvious to one of ordinary skills in the art at the time of the invention to implement the high-pressure mercury lamp of Kaneko et al. by making the amount of mercury

per unit of internal volume or amount of wattage per unit wall area appropriately relative to the size or wall surface of the luminous bulb or the load capability such as claimed to facilitate the evaporation of the enclosed mercury and thus to achieve high brilliance, high efficiency, and good color characteristics since such a relative adjustment for the stated purpose has been well known in the art as evidenced by the teachings of Arimoto et al. (see Arimoto et al.; col. 1, lines 33-35).

With respect to claim 4, the combination of Kaneko et al. and Arimoto et al. disclose that the heating wire [11, 12] is wound around the sealing portions (see Fig. 1 of Arimoto et al.).

With respect to claim 5, the combination of Kaneko et al. and Arimoto et al. disclose that (1) external lead wires [13, 15] are extending from end portions of the pair of sealing portions, and (2) one end of the heating wire [11, 12] is electrically connected to the external lead wires [13, 15] (combination of Fig. 1 of Kaneko et al. and Fig. 1 of Arimoto et al.).

With respect to claim 6, the combination of Kaneko et al. and Arimoto et al. disclose that (1) a switch [SC] (see Fig. 1 of Arimoto et al.) for turning ON and OFF an electrical connection with the external lead wires [13, 15] is connected to the heating wire [11, 12] (combination of Fig. 1 of Kaneko et al. and Fig. 1 of Arimoto et al.), and (2) the heating wire [11, 12] is electrically connected to the external lead wires [13, 15] before operation, and after operation, the electrical connection with the external lead wires [13, 15] is disconnected, and the heating wire [11, 12] is electrically connected to a power source [D] for supplying current to the heating wire [11, 12] (combination of Fig. 1 of Kaneko et al. and Arimoto et al.).

With respect to claim 7, the combination of Kaneko et al. and Arimoto et al. disclose (1) a pair of electrode rods [11] (see Fig. 2 of Kaneko et al.) being opposed to each other in the

luminous bulb, (2) the pair of electrode rods [11] being connected to a metal foil [10] (see Fig. 2 of Kaneko et al.), and (3) the metal foil [10] being provided in each of the sealing portions [8] (see Fig. 2 of Kaneko et al.), and positioned in the second glass portion [4] (see Fig. 1 of Kaneko et al.).

With respect to claims 8 and 10, the combination of Kaneko et al. and Arimoto et al. disclose, in addition to the claimed limitations already addressed in claims 1 and 7, a coil [3] with at least one on its surface is wound around at least in a portion of the electrode rod [3] that is buried the sealing portions (see Fig. 1 of Kaneko et al.), but do not specify that the coil has at least a metal selected from a group consisting of Pt, Ir, Rh, Ru, and Re. However, this difference is not of patentable merits since such kinds of materials including Pt, Ir, Rh, Ru, and Re have been commonly employed to wind around the electrodes in high-pressure discharge lamps, for their relatively high electric resistance and low thermal conductivity (see Prior Art of Record; U.S. Patent No. 6,169,365), to avoid bulb glass cracks due to heat. For these reasons, to employ a metal selected from a group consisting of Pt, Ir, Rh, Ru, and Re for the coil [3] of the combination of Kaneko et al. and Arimoto et al. to prevent the bulb glass from being cracked due to heat would have been deemed obvious to a person skilled in the art.

With respect to claim 15, the combination of Kaneko et al. and Arimoto et al. disclose that the heating means [11, 12] is configured to heat the luminous bulb at the same time as operation is started or after operation is started (see Arimoto et al.; col. 3, lines 15-33).

With respect to claim 13-14, the combination of Kaneko et al. and Arimoto et al. disclose all of the claimed subject matter, as expressly recited in claims 1-2 and 15, including means for measuring a temperature of the luminous bulb (see Arimoto et al.; col. 5, lines 51-54), except for

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the coil having at least a metal selected from a group consisting of Pt, Ir, Rh, Ru, and Re. However, this difference is not of patentable merits since such kinds of materials including Pt, Ir, Rh, Ru, and Re have been commonly employed to wind around the electrodes in high-pressure discharge lamps, for their relatively high electric resistance and low thermal conductivity (see Prior Art of Record; U.S. Patent No. 6,169,365), to avoid bulb glass cracks due to heat. For these reasons, to employ a metal selected from a group consisting of Pt, Ir, Rh, Ru, and Re for the coil of the combination of Kaneko et al. and Arimoto et al. to prevent the bulb glass from being cracked due to heat would have been deemed obvious to a person skilled in the art.

With respect to claim 16, Kaneko et al. discloses all of the claimed subject matter, as expressly recited in claim 1, except for a reflecting mirror for reflecting light emitted from the high pressure lamp, and a heating wire provided at least in a portion of the luminous bulb and at least in a portion of each of the pair of sealing portions.

Arimoto et al. discloses, in Figs. 1 and 3, a high-pressure mercury lamp unit comprising a reflecting mirror [21] for reflecting light emitted from a high-pressure lamp [2], and a heating wire [11, 12] in a portion of a luminous bulb [3] and in a portion of each of the pair of sealing portions [4, 5].

It would have been obvious to one of ordinary skills in the art at the time of the invention to implement the mercury lamp of Kaneko et al. by (i) additionally configuring a heating wire in a portion of the luminous bulb and in a portion of each of the pair of sealing portions for heating up the outer surface of the lamp including the emission portion of the discharge container to a high temperature so as to be able to make the mercury therein fully steam and thus to prevent the generation of the glow discharge at the time of the lamp start-up, and (ii) including the high-

pressure mercury lamp into a unit having a reflecting mirror for reflecting light emitted from the high-pressure mercury lamp upon a particular application or environment of use since such an arrangement of the reflecting mirror and the heating wire for the stated purpose has been well known in the art as evidenced by the teachings of Arimoto et al. (see Fig. 3; col. 1, lines 56-60; and col. 2, lines 15-30).

With respect to claim 22, the combination of Kaneko et al. and Arimoto et al. disclose that the heating means [11, 12] is a heating wire, and the heating wire serves as a trigger wire (see Arimoto et al.; col. 3, lines 15-33).

With respect to claim 21, Kaneko et al. discloses all of the claimed subject matter, as expressly recited in claim 1, except for a reflecting mirror for reflecting light emitted from the high pressure lamp, a heating wire provided at least in a portion of the luminous bulb and at least in a portion of each of the pair of sealing portions, and a temperature for measuring a temperature of the luminous bulb.

Arimoto et al. discloses, in Figs. 1 and 3, a high-pressure mercury lamp unit comprising a reflecting mirror [21] for reflecting light emitted from a high-pressure lamp [2], a heating wire [11, 12] in a portion of a luminous bulb [3] and in a portion of each of the pair of sealing portions [4, 5], and means for measuring a temperature of the luminous bulb [3] (see col. 5, lines 51-54).

It would have been obvious to one of ordinary skills in the art at the time of the invention to implement the mercury lamp of Kaneko et al. by (i) additionally configuring a heating wire in a portion of the luminous bulb and in a portion of each of the pair of sealing portions for heating up the outer surface of the lamp including the emission portion of the discharge container to a high temperature so as to be able to make the mercury therein fully steam and thus to prevent the

generation of the glow discharge at the time of the lamp start-up, (ii) arranging the high-pressure mercury lamp into a unit having a reflecting mirror for reflecting light emitted from the high-pressure mercury lamp upon a particular application or environment of use, and (iii) arranging means for measuring a temperature of the luminous bulb so as to facilitate the power control to the heating wire since such an arrangement of the reflecting mirror, the heating wire, and the temperature measuring means for the stated purpose has been well known in the art as evidenced by the teachings of Arimoto et al. (see Fig. 3; col. 1, lines 56-60; col. 2, lines 15-30; col. 5, lines 51-56).

*Allowable Subject Matter*

7. Claims 17-18 and 20 are allowed.
8. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art fails to disclose or fairly suggest:

- A high pressure mercury lamp wherein the first glass portion contains 99 wt% or more of SiO<sub>2</sub>, and the second glass portion contains SiO<sub>2</sub> and at least one of 15 wt% or less of Al<sub>2</sub>O<sub>3</sub> and 4 wt% or less of B, in combination with the remaining claimed limitations as called for in claim 9; and
- A lamp unit comprising a heating wire which is provided at least at a portion of the reflecting means, in combination with the remaining claimed limitations as called for in independent claim 17 (claims 18 and 20 are allowed since they are dependent on claim 17).

*Citation of relevant prior art*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Arimoto et al. (U.S. Patent No. 6,597,118) discloses a high-pressure discharge lamp.

Prior art Kubon et al. (U.S. Patent No. 6,169,365) discloses a high-pressure discharge lamp.

*Inquiry*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuy V. Tran whose telephone number is (571) 272-1828. The examiner can normally be reached on M-F (8:00 AM -5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

04/17/2005



THUY V. TRAN  
PRIMARY EXAMINER